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XVII. *Several Ways of determining what Sum is to be insured on an Adventure, that the whole Interest may be covered.*  
By MERCATOR.

I. **T**HE first and most common way is, to cast the premium of insurance at the stipulated rate, on the adventure,—on that premium,—on the premium of the first premium, and so on until the premium be so small as not to be worth noticing ; then to collect the adventure and these several premiums (first and secondary) into one sum, which will be the sum to be insured.

*Example.* Adventure, £.315 ;—rate of insurance, 30 per cent.

$$\begin{array}{r} \text{£.}315 \\ \quad 30 \\ \hline 94.50 \\ \quad 20 \\ \hline 10,00 \end{array}$$

First premium.

$$\begin{array}{r} \text{£.}94.10.0 \\ \quad 10 \\ \hline 945.0.0 \\ \quad 3 \\ \hline 28,35.0.0 \\ \quad 20 \\ \hline 7,00 \end{array}$$

Second premium.

$$\begin{array}{r} \text{£.}28.7.0 \\ \quad 10 \\ \hline 283.10.0 \\ \quad 3 \\ \hline 8,50.10.0 \\ \quad 20 \\ \hline 10,10 \\ \quad 12 \\ \hline 1,20 \\ \quad 4 \\ \hline ,80 \end{array}$$

Third premium.

$$\begin{array}{r} \text{£.}8.10.1\frac{1}{4} \\ \quad 3 \\ \hline 25.10.3.3 \\ \quad 10 \\ \hline 2,55.3.1.2 \\ \quad 20 \\ \hline 11,03 \\ \quad 12 \\ \hline ,37 \\ \quad 4 \\ \hline 1,50 \end{array}$$

Fourth

## Fourth premium.

£.2. 11. 0. 2
10
25. 10. 5. 0
3
76. 11. 3. 0
20
15,31
12
3,75
4
3,00

## Sixth premium.

£.0. 4. 7. 1
3
0. 13. 9. 3
10
06. 18. 1. 2
20
1,38
12
4,57
4
2,30

## Eighth premium.

£.0. 0. 5. 0
30
0. 12. 6. 0
12
1,50
4
2,00

## Ninth premium.

£.0. 0. 1. 2
30
1. 3. 0
2. 6.
3. 9. 0
12
45
4
1,80

## Fifth premium.

£.0. 15. 3. 3
10
7. 13. 1. 2
3
22. 19. 4. 2
20
4,59
12
7,12
4
50

## Seventh premium.

£.0. 1. 4. 2
30
1. 3. 0
10
1. 10
02. 1. 3. 0
20
041
12
4,95

## Tenth premium.

2 farthings.

## Collection.

Adventure, £.315.	0. 0. 0
1st. premium,	94. 10. 0. 0
2d.	28. 7. 0. 0
3d.	8. 10. 1. 1
4th.	2. 11. 0. 2
5th.	15. 3. 3
6th.	4. 7. 1
7th.	1. 4. 2
8th.	0. 5. 0
9th.	0. 1. 2
10th.	0. 2
450.	0. 0. 1

And

And observe :—The greater the rate of insurance, the more operations are requisite ; because the less of the adventure will be covered by the insurance of each preceding premium.

2. Another way.—Cast the premium of insurance on the adventure, (as before) which, subtract from the adventure ;—then, by the Rule of Three, it will be—as that remainder : the adventure :: the adventure : the sum to be insured.

*Example.* Adventure, £.315.—Rate of insurance, 30 per cent.

$\begin{array}{r} \text{£.}315 \\ 30 \\ \hline 94,50 \\ 20 \\ \hline 10,00 \end{array}$	$\begin{array}{r} \text{£.}315. \ 0. \ 0 \\ 94. \ 10. \ 0 \\ \hline \text{Remain. } 220. \ 10. \ 0 \end{array}$	$\begin{array}{r} \text{As } \text{£.}220. \ 10s. : \text{£.}315 :: \text{£.}315 : \\ 20 \\ \hline 4410 \end{array}$	$\begin{array}{r} \text{£.}315 : \\ 20 \\ \hline 6300 \\ 315 \\ \hline 31500 \\ 6300 \\ \hline 18900 \\ \hline 4410 ) 1984500 ( 450 \\ 17640 \\ \hline 22050 \\ 22050 \\ \hline 000000 \end{array}$
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The last operation here is best done, in many cases, by decimal arithmetick : Thus,

$$\begin{array}{r} \text{As } 220,5 : 315 :: 315 \\ 315 \\ \hline 99225 \\ 220,5 \ ) \ 99225,0 \ ( \ 450 \\ 8820 \\ \hline 11025 \\ 11025 \\ \hline 000000 \end{array}$$

3. Another and very expeditious way is as follows :

Multiply the adventure by 100 ; and divide the product by 100 less the rate of insurance, (or, the difference between 100 and the rate of insurance) and the quotient will shew the sum to be insured.

*Example.* Adventure, £.315. Rate of insurance 30 per cent.

$$\begin{array}{r}
 100 \quad 315 \\
 30 \quad 100 \\
 \hline
 70 \quad ) \quad 31500 \quad ( \quad 450 \\
 \quad \quad 28000 \\
 \quad \quad \hline
 \quad \quad 0350 \\
 \quad \quad 350 \\
 \quad \quad \hline
 \quad \quad 0000
 \end{array}$$

